

CLAIMS:

1. A liquid-crystal display device having a display cell which comprises a layer of a nematic, liquid-crystal material between two substantially parallel substrates, which display cell is further provided with polarizers, characterized in that the display cell comprises at least two retardation foils which predominantly contain polymerized or vitrified liquid-crystalline material, the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material exhibiting a tilt angle relative to the substrates, and the average directions of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material of each of the retardation foils, making an angle with each other which ranges between 60 and 120 degrees, viewed at right angles to the substrates.

2. A liquid-crystal display device as claimed in Claim 1, characterized in that the direction of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material is substantially constant in at least one of the retardation foils.

3. A liquid-crystal display device as claimed in Claim 1 or 2, characterized in that the tilt angle of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material varies, in at least one of the retardation foils, in a direction at right angles to the foil.

4. A liquid-crystal display device as claimed in Claim 3, characterized in that, in the retardation foil, the average tilt angle of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material is at least 10 degrees.

5. A liquid-crystal display device as claimed in Claim 1 or 2, characterized in that the tilt angle of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material is substantially constant in at least one of the retardation foils.

6. A liquid-crystal display device as claimed in Claim 6, characterized in that, in the retardation foil, the tilt angle of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material is at least 10 degrees and at most 70 degrees.

7. A liquid-crystal display device as claimed in any one of the preceding Claims, characterized in that the polymerized or vitrified material comprises liquid-crystalline molecules which are provided, at one end, with a non-polar group and, at the other end, with a polar group.

8. A liquid-crystal display device as claimed in Claim 7, characterized in that at the end provided with the non-polar group, the liquid-crystalline molecules are covalently bonded to the polymerized or vitrified material.

9. A compensator layer, characterized in that it comprises at least two

5 retardation foils which predominantly contain polymerized or vitrified liquid-crystalline material, the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material exhibiting a tilt angle relative to a plane parallel to the ^{compensation} compensation layer, and the average directions of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material of each of the retardation foils making an angle with each
10 other which ranges between 60 and 120 degrees, viewed at right angles to the plane parallel to the compensator layer.

10. A compensator layer as claimed in Claim 9, characterized in that the direction of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material is substantially constant in at least one of the retardation foils.

15 11. A compensator layer as claimed in Claim 9 ~~or 10~~; characterized in that the tilt angle of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material varies in at least one of the retardation foils.

12. A compensator layer as claimed in Claim 9 ~~or 10~~; characterized in that the tilt angle of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline
20 material is substantially constant in at least one of the retardation foils.

13. A compensator layer as claimed in ~~any one of Claims 9 to 12~~, characterized in that the polymerized or vitrified material comprises liquid-crystalline molecules which are provided, at one end, with a non-polar group and, at the other end, with a polar group.

25 14. A ^{compensation layer} liquid-crystal display device as claimed in Claim 13, characterized in that at the end provided with the non-polar group, the liquid-crystalline molecules are covalently bonded to the polymerized or vitrified material.

15. A method of manufacturing a retardation foil, characterized in that a liquid-crystalline mixture in the smectic C-phase between two homeotropically aligning
30 substrates is cured by means of polymerization.

ferrocene or carbonyl compound